

8 Boiler installation

This chapter details how to install your boiler correctly. These details include:

- Flue connection
- Water connections
- Electrical connection
- Burner installation (field installation)
- Fuel connection

8.1 Flue connection

8.1.1 Chimney venting

Connect boiler to vertical chimney with a 6" vent pipe. Use only venting systems that comply with local codes and regulations. If local codes are not available, refer the the following regulations:

- NFPA 31, Installation of Oil-Burning Equipment,
- NFPA 211, Standard for Chimneys, Fire Places and Solid Fuel Burning Appliances,
- In Canada refer to CSA B139, Installation Code for Oil-Burning Equipment,
- NFPA 211 requires chimney to be lined before connecting boiler.

Inspecting and cleaning existing flue

Inspect and clean the old flue before installation of the new boiler.

- Remove blockages and dirt from the chimney.
- Clean chimney
- Repair or replace faulty flues.
- If necessary, repair chimney with mortar and joints.

Down drafts



NOTICE

To prevent down drafts extend chimney at least 3 feet above the roof opening at least 2 feet above any part of the roof within a radius of 10 feet.

Minimum clearances to combustible objects

Flue pipe	Type	Minimum clearance
Double-wall	L	6"
Single-wall	L	18"

Tab. 13 Minimum clearances to combustible objects for flue systems

Minimum size of chimney

The minimum recommended chimney size is 8" x 8" (6 3/4" x 6 3/4" inside liner) or 6" diameter with a minimum height of 20 feet. Use a 6" flue pipe for connection to an existing chimney.

Installing the flue pipe

- Slide 6" Insert flue pipe onto the flue outlet and secure with 2 screws.



NOTICE

Avoid long horizontal flue pipe runs and keep the number of bends to a minimum.

- Install flue connections between boiler and chimney to slope up at least 1/4" per foot to the chimney.
- Connect the flue pipe to the chimney above the bottom of the chimney to prevent blockages.
- Install cleaning and service hatches for cleaning the flue system.

After starting the burner, set breeching draft to -.01 to -.02 inches WC with a draft gauge. (The overfire pressure can be positive). If necessary, install draft controllers in the flue system to maintain the negative pressure in the system or to meet code requirements. Always install the draft controller in vertical position. Use a draft gauge when making adjustments.

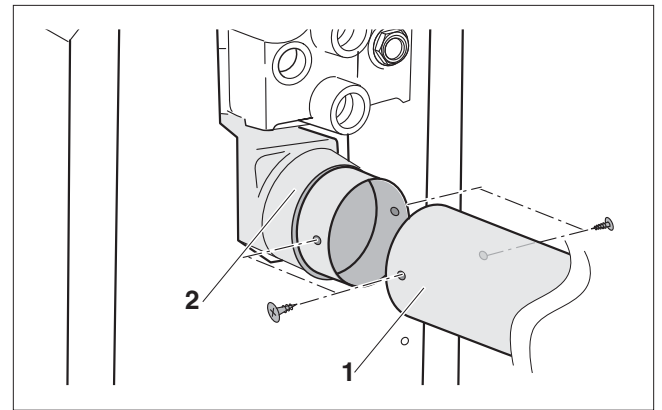


Fig. 45 Installing the flue pipe

- 1 Flue pipe
- 2 Boiler flue outlet

8.2 Installation of water connections

8.2.1 Installing B-Kit:

The relief valve and the pressure/temperature gauge are mounted on the conversion nipple (included in B-Kit) on the VK boiler supply connection as follows:

- Measure length of thread on R1 ¼" x 1 ¼" NPT double nipple.
- Seal supply manifold to connection VK with the long side to the boiler.

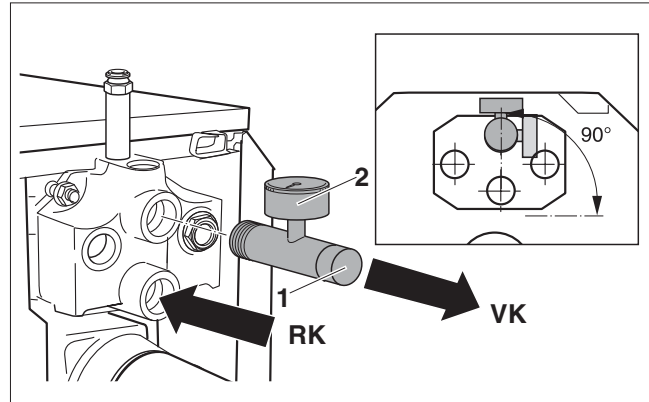


Fig. 46 Installing B-Kit

- 1 Supply manifold
- 2 Pressure/temperature gauge

- Seal conversion nipple on boiler inlet VK.
- Seal pressure/temperature gauge to conversion nipple.



NOTICE

Do not install the pressure relief valve until after the leak test (→ Chapter 8.3, page 37).

The pressure relief valve must be installed in a vertical position.

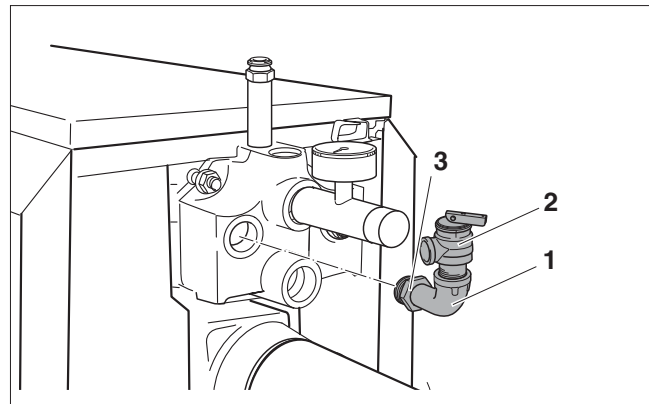


Fig. 47 Installing B-Kit

- 1 90°-elbow 1 ¼" NPT
- 2 Pressure relief valve
- 3 Conversion nipple 1" x ¾"

8.2.2 Installation of boiler drain (included in B-Kit)

- Install the boiler fill and drain valve with seal to connector EL.
- Seal boiler drain to connection EL.

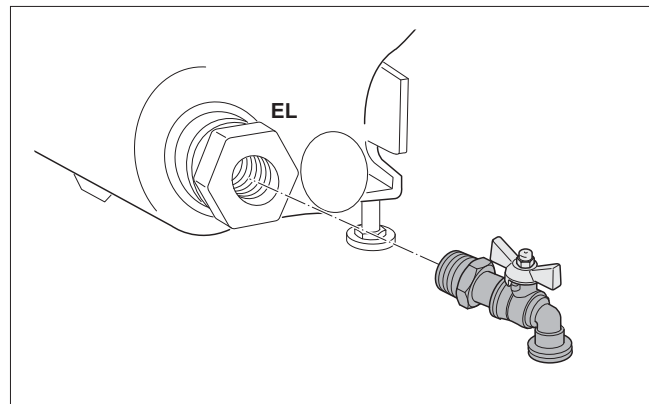


Fig. 48 Installation of boiler drain

8.2.3 Installation of system components

See the installation diagram for recommended installation of the heating system components.

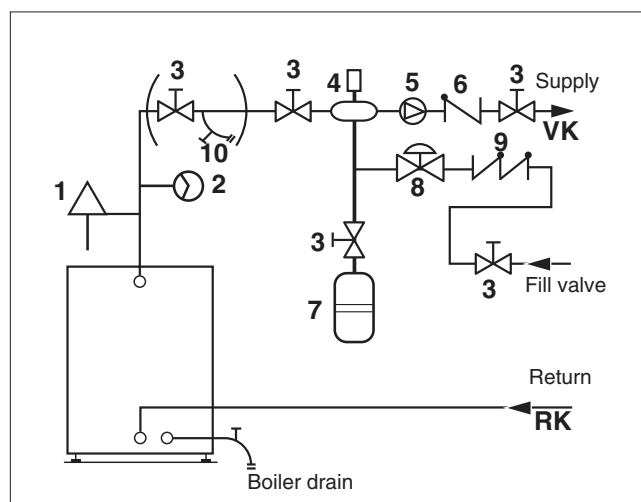


Fig. 49 Installation diagram

- 1 Pressure relief valve
- 2 Pressure/temperature gauge
- 3 Ball or stop valve
- 4 Air eliminator
- 5 System pump
- 6 Back flow preventer
- 7 Expansion tank
- 8 Automatic feed valve
- 9 Check valve
- 10 Purge station

8.3 Filling heating system and checking for water leaks

When the boiler is delivered assembled it is checked for leaks at the factory. Before placing the heating system into operation, check it for leaks to prevent leaks occurring during operation. When supplied disassembled (→ Chapter 7.2, page 26).



SYSTEM DAMAGE

due to overpressure during leak testing. Pressure, control and safety equipment may be damaged by excessive pressure.

- When you carry out a leak test, make sure that no pressure, control or safety equipment is fitted which cannot be isolated from the boiler water chamber.

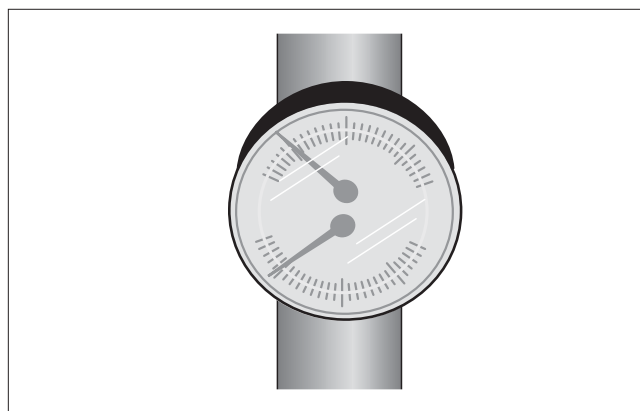


Fig. 50 Pressure/temperature gauge

Carry out the leak test at 1.5 times the standard operating pressure and in accordance with the codes.

Maximum operating pressure	Maximum site test pressure
30 psi (with the supplied pressure relief valve)	45 psi
58 psi (with a different pressure relief valve)	75 psi

- Seal pressure relief valve connection (→ Fig. 47 page 36) and all other open connection with blind plugs.
- Close the expansion tank from the system by closing the cap valve.
- Open the mixing and shut-off valves on the heating water (primary) side.
- Connect the hose to the water tap. Attach a hose filled with water onto the hose connection of the boiler fill & drain valve, fasten with a hose clip and open the valve.
- Slowly fill the boiler with water from the tap.
- Open the cap of the automatic air vent by one full turn to allow air to escape.
- Slowly fill the heating system. Observe the pressure gauge while filling.
- Close the water tap and the boiler fill & drain valve once the required operating pressure has been reached.
- Check the connections and pipework for soundness.
- Bleed the system via the radiator bleed valves.
- Top off with water if the pressure drops as a result of bleeding the system.
- Installing pressure relief valve (→ Fig. 47 page 36).
- Remove the hose from the boiler fill and drain valve.

8.4 Burner installation

Only one burner that complies with the technical data of the boiler can be mounted on boilers without integrated burners (→ Chapter 3, page 8).



CAUTION!

SYSTEM DAMAGE

due to incorrect burner.

- Only use burners which meet the technical boiler requirements.

- Screw studs included with the B-Kit to the burner door.
- Fit the burner to the hole circle of the burner door.

**NOTICE**

Approved burners with accessories (such as aquastat and circulator) are also available as a package from Buderus Hydronic Systems.

- Install burner with the correct nozzle and settings (air, pump pressure, turbulator settings, flange position).
- Place the seal on the studs and secure the burner with the included nuts.
- Follow the manufacturer's direction for installation, fine adjustment and regular maintenance procedures.

**NOTICE**

For the correct burner settings see the → documentation for the flue system and the → burner.

- Wire up the burner (see → documentation for burner).

8.5 Providing a fuel supply

Make the fuel connection in accordance with all locally applicable regulations. We recommend the installation of a fuel filter.

- Visually inspect the fuel pipe and clean or replace, if necessary.
- Install a shut-off valve into the fuel supply pipe.
- Connect the fuel pipe free of stress to the boiler.
- Check the fuel line for leaks.

8.6 AquaSmart™ installation

The AquaSmart™ controls the boiler supply temperature.

- For Installation and Operation of the AquaSmart™ Control and sensor well see the AquaSmart™ Installation Instructions supplied with the control. For wiring diagrams of the AquaSmart™ → Chapter 12, page 57.
- Install AquaSmart™ and sensor well as specified by the installation manual.

For operating the boiler with AquaSmart™ control see instructions supplied with the controller.

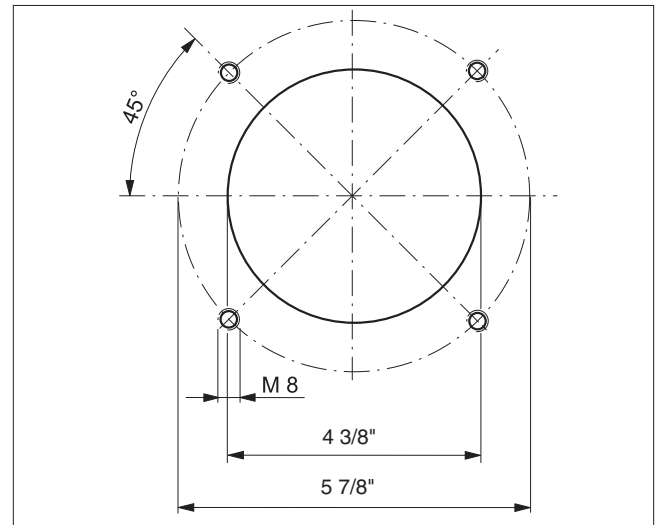


Fig. 51 Burner door mounting holes

8.7 HydroStat installation

The HydroStat controls the boiler supply temperature.

- For Installation and Operation of the HydroStat Control and sensor well see the HydroStat Installation Instructions supplied with the control. For wiring diagrams of the HydroStat → Chapter 12, page 57.

8.8 Electrical connections

This section only applies to boilers using Buderus Logamatic 2107 controls.



WARNING!

DANGER TO LIFE

from electric shock.

- Only qualified electricians are permitted to carry out electrical work.
- Before you open the control: shut off electrical supply and secure against accidental activation.
- Please observe all installation instructions.

8.8.1 Fitting the Logamatic control panel

- Locate the push-in hooks of the Logamatic control panel in the slots.
- Push the control panel towards the burner door.
- Let the flexible hooks of the control panel click into the openings by pushing the control panel down.

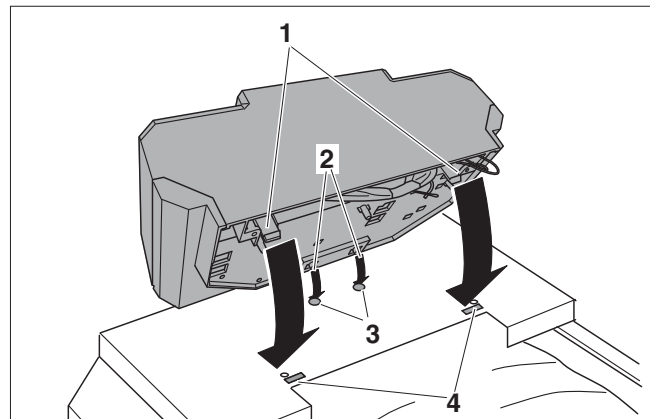


Fig. 52 Fitting the control panel

- 1 Flexible hooks
- 2 Locking tabs
- 3 Slots
- 4 Openings

- Remove the Logamatic control panel cover. First remove the cover screws.
- Secure the control panel with self-tapping screws.

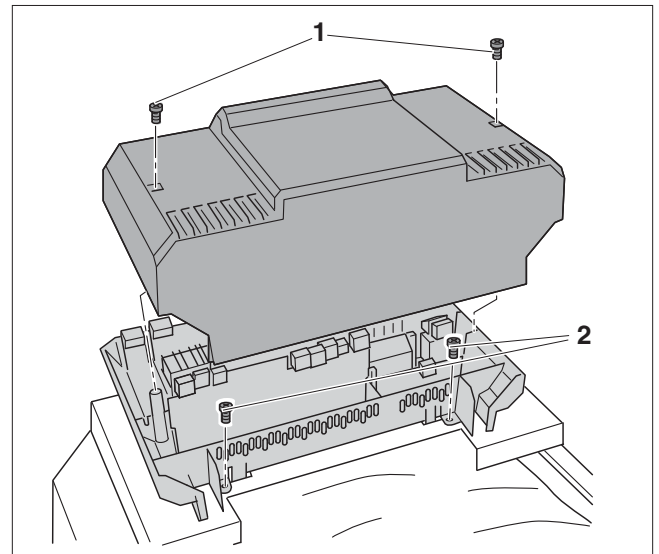


Fig. 53 Removing the cover

- 1 Cover screws
- 2 Self-tapping screws

8.8.2 Installation of the temperature sensor set and burner cable



SYSTEM DAMAGE

Capillary tubes may become unsound due to severe kinking or sharp burrs.

- Carefully route capillary tubes using large radius.
- Route capillary tubes and sensor wiring through the cable opening of the front boiler jacket and connect to test port.
- Roll up surplus capillary tubes and sensor lead and lay them on the thermal insulation.
- Route the burner cable through the cable entry in the front boiler cover to the control panel.
- Connect the burner cable to the control in accordance with the terminal markings.

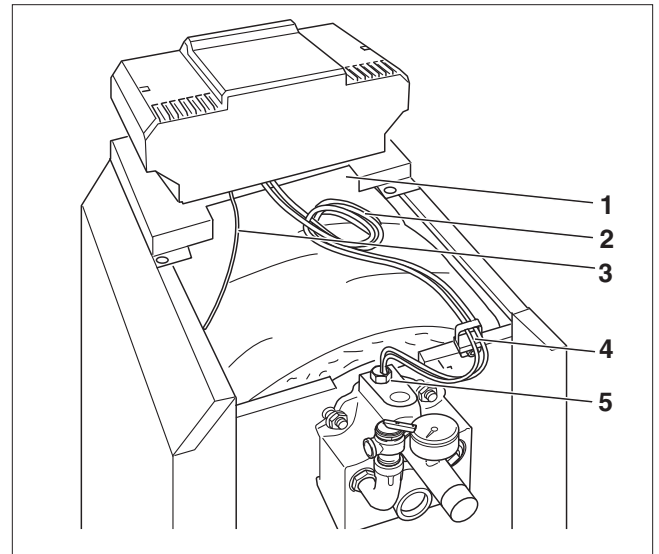


Fig. 54 Routing and connecting cables

- 1 Cable entry in the front boiler cover
- 2 Capillary tubes and sensor cable
- 3 Burner cable
- 4 Cable entry
- 5 Sensor well (test port)

**NOTICE**

If an AquaSmart™ or Hydrolevel HydroStat is being installed the factory-fitted immersion well must be replaced by the immersion well supplied with the control.

- Slide temperature sensor bundle set with compensating spring into the sensor well to the stop. The plastic spiral is then pushed back automatically.
- Push the sensor holder (included with the control device) over the side of the sensor well head.

**NOTICE**

Ensure good contact between the sensor surfaces and the sensor well to ensure good temperature transfer. Use the compensating spring.

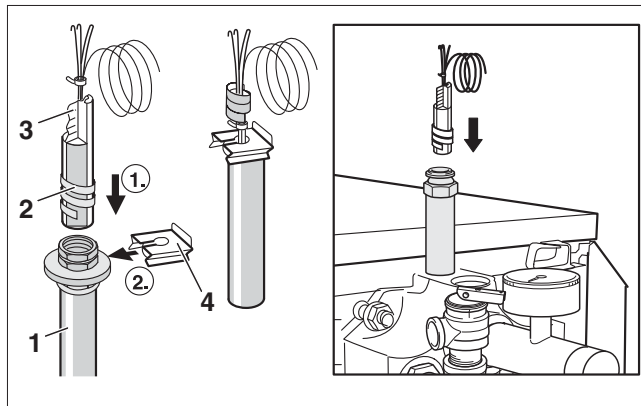


Fig. 55 installing the temperature sensor set

- 1 Sensor well
- 2 Plastic spiral
- 3 Compensating spring
- 4 Sensor holder

8.8.3 Electrical connections and connection of additional components

Install a permanent electrical power connection in accordance with local codes.



RISK OF FIRE

Hot components may damage electrical wiring.

- Ensure that all wiring is routed in the ducts provided or on the boiler insulation.
- Route all cables through the cable entries to the Logamatic control panel and connect in accordance with the wiring diagram.

8.8.4 Strain relief installation

Secure all cable runs with cable ties (included with the control):

- Insert the cable ties together with the cable from the top into the slots of the clamp frame (step 1).
- Push the cable tie down (step 2).
- Push against the tie (step 3).
- Flick the toggle up (step 4).

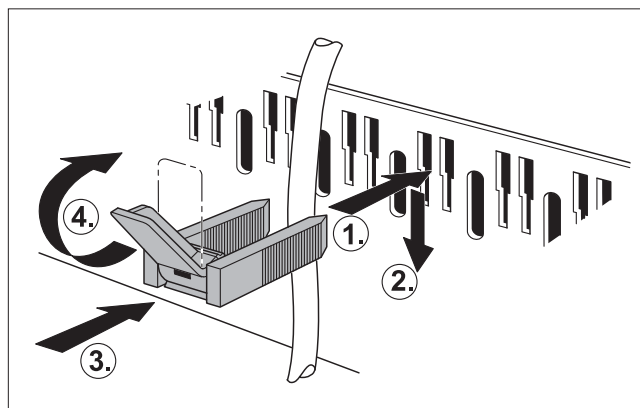


Fig. 56 Securing cables with cable ties

8.9 Jacket panel installation

- Locate and secure the Logamatic control panel top device cover.
- Fit the rear boiler cover.

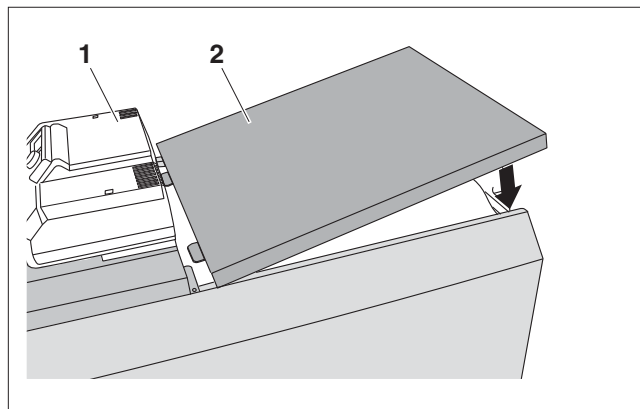


Fig. 57 Install the back boiler cover

- 1 Control panel cover
- 2 Back boiler cover